

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions of claims in the application:

LISTING OF CLAIMS:

1. (Cancelled)
- 1 2. (Cancelled)
- 1 3. (Cancelled)
- 1 4. (Cancelled)
- 1 5. (Cancelled)
- 1 6. (Cancelled)
- 1 7. (Cancelled)
- 1 8. (Cancelled)
- 1 9. (Cancelled)
- 1 10. (Previously presented) A current in plane magnetoresistive sensor, comprising:
2 a magnetic free layer having a magnetization biased parallel to an air bearing
3 surface (ABS);

4 a magnetic pinned layer having a magnetization pinned perpendicular to said
5 ABS;
6 a non-magnetic spacer layer disposed between said free layer and said pinned
7 layer;
8 said free layer, pinned layer, and spacer layer having first and second laterally
9 opposed sides defining a track width;
10 a magnetic bias layer formed adjacent said free layer within said track width;
11 a bias pinning layer formed adjacent said bias layer opposite said free layer within
12 said track width, said bias pinning layer extending laterally outward substantially
13 beyond said track width;
14 wherein said bias pinning layer further comprises first and second magnetic layers
15 formed of a high coercivity magnetic material, and separated from one another by non-
16 magnetic coupling layer, said first and second layers of high coercivity material having
17 magnetizations anti-parallel coupled with one another.

1 11. (Original) A magnetoresistive sensor as in claim 10 wherein said first and second
2 high coercivity magnetic material layers comprise CoPtCr.

1 12. (Previously presented) A magnetoresistive sensor as in claim 10 wherein said
2 first and second high coercivity material layers each have a thickness of between
3 20 and 40 angstroms.

1 13. (Original) A magnetoresistive sensor as in claim 10, wherein said non-magnetic
2 coupling layer comprises Ru.

1 14. (Previously presented) A magnetoresistive sensor as recited in claim 10 further
2 comprising a seed layer formed adjacent said bias pinning layer opposite said bias layer.

1 15. (Previously presented) A magnetoresistive sensor as in claim 14 wherein said
2 seed layer comprises Cr.

1 16. (Previously presented) A magnetoresistive sensor as in claim 14 wherein said
2 seed layer comprises Cr and wherein said seed layer has a thickness of from 20 to
3 40 angstroms.

1 17. (Previously presented) A magnetoresistive sensor as in claim 10 further
2 comprising first and second electrically insulating side walls formed at said first and
3 second sides defined by said free layer, said pinned layer, and said spacer layer.

1 18. (Original) A magnetoresistive sensor as in claim 17 wherein said first and second
2 electrically insulating side walls comprise alumina (Al_2O_3).

1 19. (Previously presented) A magnetoresistive sensor as in claim 17, further
2 comprising at least one magnetic shield extending into a sensor stack height region, and
3 being formed adjacent a portion of said electrically insulating side walls and extending
4 laterally outward therefrom.

5
6 20. (Original) A magnetoresistive sensor as in claim 10 wherein said first and second
7 magnetic layers of said bias pinning layer have substantially the same magnetic
8 thickness.